CA Bioresources Symposium

Financing California Biogas Projects: Leveraging Environmental Assets

Caitlin Sparks
SVP Strategic Development, The Prasino Group
June 3rd, 2014

The prasino Group

We Make Sustainability Real

- Consulting, product development, project development, project finance
- Clients in agriculture, energy and food
- Bioenergy/Biofuels practice in US/CA: BEAST™ and Bioenergy Association of CA (BAC)
- Environmental Asset Development
  - Canada, California, International
  - 50+ years of experience among partners

The prasino Group

Overview

- Regulatory drivers behind bioenergy and biofuels asset development
- The assets in play: carbon offsets, RFS2 RINs, LCFS credits
- Current state of of asset financing
- BEAST™: Prasino practice for environmental asset development

Regulatory Drivers

RFS2	LCFS	AB32	RPS/REC

• Created in 2005, expanded in 2007 under Energy Independence and Security Act (EISA)
  • New categories of fuel/ new targets
  • Lifecycle GHG performance standard
• Final rulemaking for RFS2 published in the Federal Register on March 26, 2010
	• Schwarzenegger Exec Order in 2007 to enact LCFS
	  • 10 percent reduction in CI of CA transportation fuels by 2020
	  • Eligibility criteria defined by CARB in 2009
	  • LCFS took effect Jan. 2011
	  • California LCFS considers full life cycle emissions (well to wheel)
		• Schwarzenegger Executive Order in 2006, came into force in 2013
		  • 1990 levels by 2020, 25% reduction
		  • Four eligible protocol types: ODS, Forestry, Urban Forestry, Dairy Livestock
		  • Two in the works: rice and CMM
			• Renewable Portfolio Standard established 2002
			  • Utilities must procure increasing percentages of retail power from renewables – wind, solar and biomass
			  • 33% overall by 2020
			  • Can comply through purchase of RECs

The prasino Group

What are the Environmental Assets?

RFS2 RINs	• Renewable Fuel Standard: production of biofuels • RINs issued by EPA (measured in gallons) • Projects outside the US are eligible for generating credits
CA LCFS Credits	• Low Carbon Fuel Standard: CO_2 avoided by clean fuel production • Credits issued by California Air Resources Board (measured in tCO_2e) • Projects outside CA eligible for credits
Carbon Credits	• CCO – California Compliance Offset, issued by ARB • California/Canada compliance • Voluntary
RECs	• Renewable Energy Credits • Represent one megawatt-hour (MWh) of renewable power • State level compliance RPS targets • Voluntary

The prasino Group

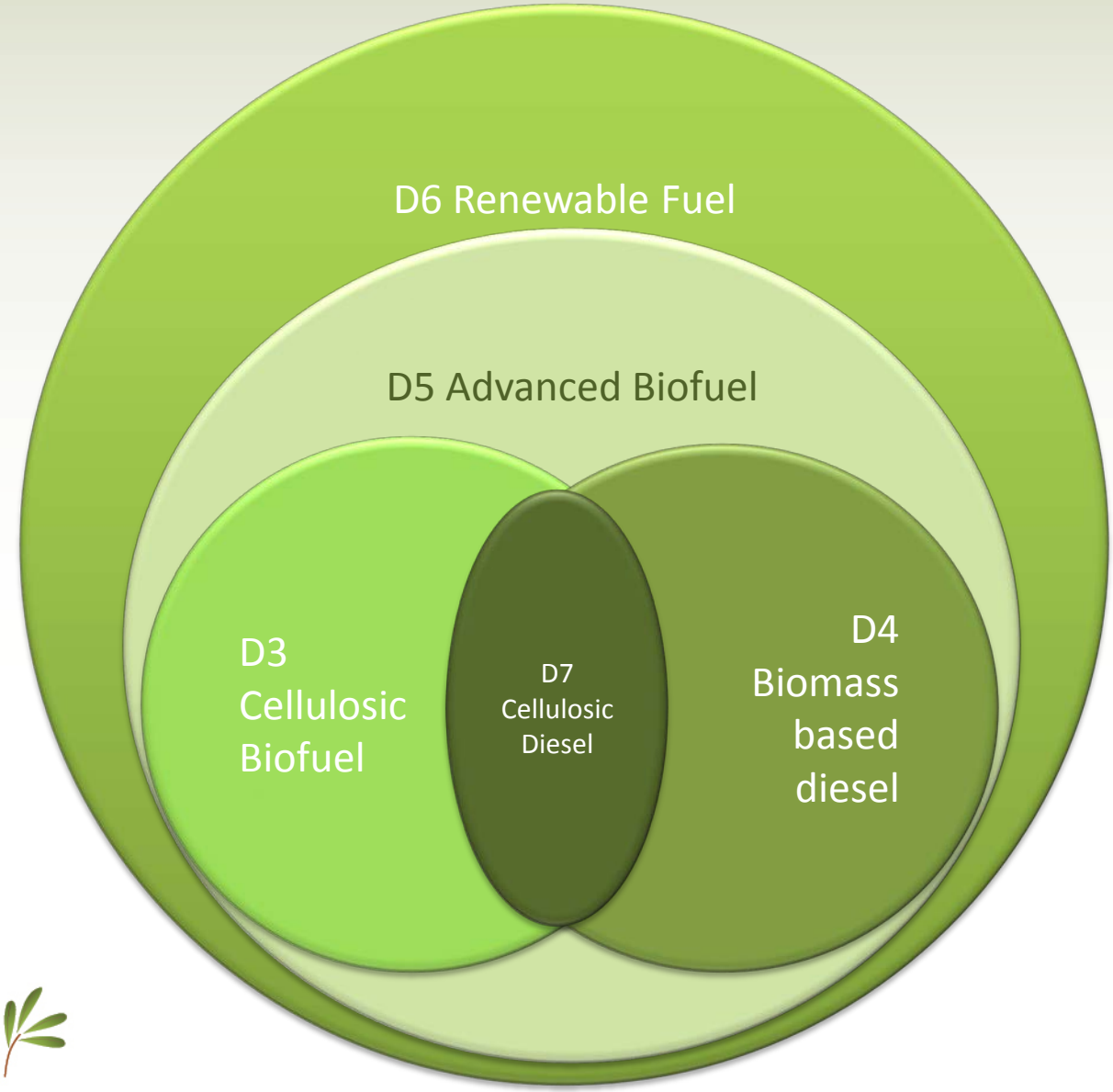
RFS2 -- EPA RIN Codes and Fuel Types

D Code RIN	Fuel Type	Fuel	GHG Reduction Requirement
D3	Cellulosic Biofuels	Cellulosic ethanol	60%
D4	Biomass-based Diesel	Biodiesel, renewable diesel	50%
D5	Advanced Biofuels	Sugarcane ethanol, Sorghum/biogas ethanol, RCNG	50%
D6	Renewable Fuel	Corn ethanol	20%
D7	Cellulosic Diesel	Cellulosic diesel	60%

Pricing between .25 and .50 USD, was over 1.00 USD

The prasino Group

Working with RFS2



The prasino Group

Working with RFS2

69628 Federal Register / Vol. 78, No. 224 / Wednesday, November 20, 2013 / Proposed Rules

that complies with the provisions of the Act and applicable federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this proposed action merely approves state law as meeting federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- Is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
- does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4);
- does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272) because application of those requirements would be inconsistent with the Act; and
- does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, this proposed action does not have tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP is not approved to apply in Indian country located in the state, and EPA notes that it will not impose substantial direct costs on tribal governments or preempt tribal law.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Hydrocarbons, Incorporation by reference, Intergovernmental relations, Oxides of nitrogen, Ozone, Reporting and recordkeeping requirements, Volatile organic compounds.

Dated: November 8, 2013.

Judith A. Enck,

Regional Administrator, Region 2.

[FR Doc. 2013–27679 Filed 11–19–13; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 80

[EPA–HQ–OAR–2013–0479; FRL–9903–10–OAR]

RIN 2060–AR76

Public Hearing for the 2014 Standards for the Renewable Fuel Standard Program

AGENCY: Environmental Protection Agency (EPA).

ACTION: Announcement of public hearing.

SUMMARY: The EPA is announcing a public hearing to be held for the proposed rule 2014 Standards for the Renewable Fuel Standard Program, which EPA will publish separately in the **Federal Register**. The hearing will be held in Washington, DC on December 5, 2013. In the separate notice of proposed rulemaking EPA has proposed amendments to the renewable fuel standard program regulations to establish annual percentage standards for cellulosic biofuel, biomass-based diesel, advanced biofuel, and renewable fuels that would apply to all gasoline and diesel produced in the U.S. or imported in the year 2014. In addition, the separate proposal includes a proposed biomass-based diesel applicable volume for 2015.

DATES: The public hearing will be held on December 5, 2013 at the location noted below under **ADDRESSES**. The hearing will begin at 9 a.m. and end when all parties present who wish to speak have had an opportunity to do so. Parties wishing to testify at the hearing should notify the contact person listed under **FOR FURTHER INFORMATION CONTACT** by November 26, 2013. Additional information regarding the hearing appears below under **SUPPLEMENTARY INFORMATION.**

ADDRESSES: The hearing will be held at the following location: Hyatt Regency Crystal City, 2799 Jefferson Davis Highway, Arlington, VA 22202 (phone number 703–413–6718). A complete set of documents related to the proposal will be available for public inspection at the EPA Docket Center, located at 1301 Constitution Avenue NW., Room 3334, Washington, DC between 8:30 a.m. and 4:30 p.m., Monday through Friday, excluding legal holidays. A reasonable fee may be charged for copying. Documents will also be available through the electronic docket system at *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Julia MacAllister, Office of Transportation and Air Quality, Assessment and Standards Division, Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; telephone number: (734) 214–4131; Fax number: (734) 214–4816; Email address: *macallister.julia@epa.gov.*

SUPPLEMENTARY INFORMATION: The proposal for which EPA is holding the public hearing has been published separately in the **Federal Register**.

Public Hearing: The public hearing will provide interested parties the opportunity to present data, views, or arguments concerning the proposal (which can be found at *http://www.epa.gov/otaq/fuels/renewablefuels/index.htm*). The EPA may ask clarifying questions during the oral presentations but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as any oral comments and supporting information presented at the public hearing. Written comments must be received by the last day of the comment period, as specified in the notice of proposed rulemaking.

How can I get copies of this document, the proposed rule, and other related information?

The EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2013–0479. The EPA has also developed a Web site for the Renewable Fuel Standard (RFS) program, including the notice of proposed rulemaking, at the address given above. Please refer to the notice of proposed rulemaking for detailed information on accessing information related to the proposal.

Dated: November 14, 2013.

Christopher Grundler,

Director, Office of Transportation and Air Quality, Office of Air and Radiation.

[FR Doc. 2013–27827 Filed 11–19–13; 8:45 am]

BILLING CODE 6560–50–P

§°80.1426°°How·are·RINs·generated·and·assigned·to·batches·of·renewable·fuel·by·renewable·fuel·producers·or·importers?¶

(a)°*General·requirements.*°—¶

(1)·To·the·extent·permitted·under·paragraphs·(b)·and·(c)·of·this·section,·producers·and·importers·of·renewable·fuel·must·generate·RINs·to·represent·that·fuel·if·the·fuel:¶

(i)·Qualifies·for·a·D·code·pursuant·to·§°80.1426(f),·or·EPA·has·approved·a·petition·for·use·of·a·D·code·pursuant·to·§°80.1416;·and¶

(ii)·Is·demonstrated·to·be·produced·from·renewable·biomass·pursuant·to·the·reporting·requirements·of·§°80.1451·and·the·recordkeeping·requirements·of·§°80.1454;·and¶

(A)·Feedstocks·meeting·the·requirements·of·renewable·biomass·through·the·aggregate·compliance·provision·at·§°80.1454(g)·are·deemed·to·be·renewable·biomass.¶

(B)·[Reserved]¶

(iii)·Was·produced·in·compliance·with·the·registration·requirements·of·§°80.1450,·the·reporting·requirements·of·§°80.1451,·the·recordkeeping·requirements·of·§°80.1454,·and·all·other·applicable·regulations·of·this·subpart·M.¶

(2)·To·generate·RINs·for·imported·renewable·fuel,·including·any·renewable·fuel·contained·in·imported·transportation·fuel,·heating·oil,·or·jet·fuel,·importers·must·obtain·information·from·a·foreign·producer·that·is·registered·pursuant·to·§°80.1450·sufficient·to·make·the·appropriate·determination·regarding·the·applicable·D·code·and·compliance·with·the·renewable·biomass·definition·for·each·imported·batch·for·which·RINs·are·generated.¶

The prasino Group

RFS2 -- Engineering Reviews

Engineering Reviews are required by regulation under RFS2 for a facility to generate RINs

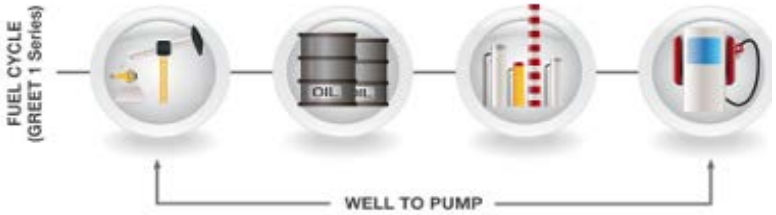
Independent third party opinion by certified engineer that the facility is capable of producing a transportation fuel of sufficient quality and quantity to meet the requirements and objectives of the RFS2 program

The prasino Group

Working with LCFS

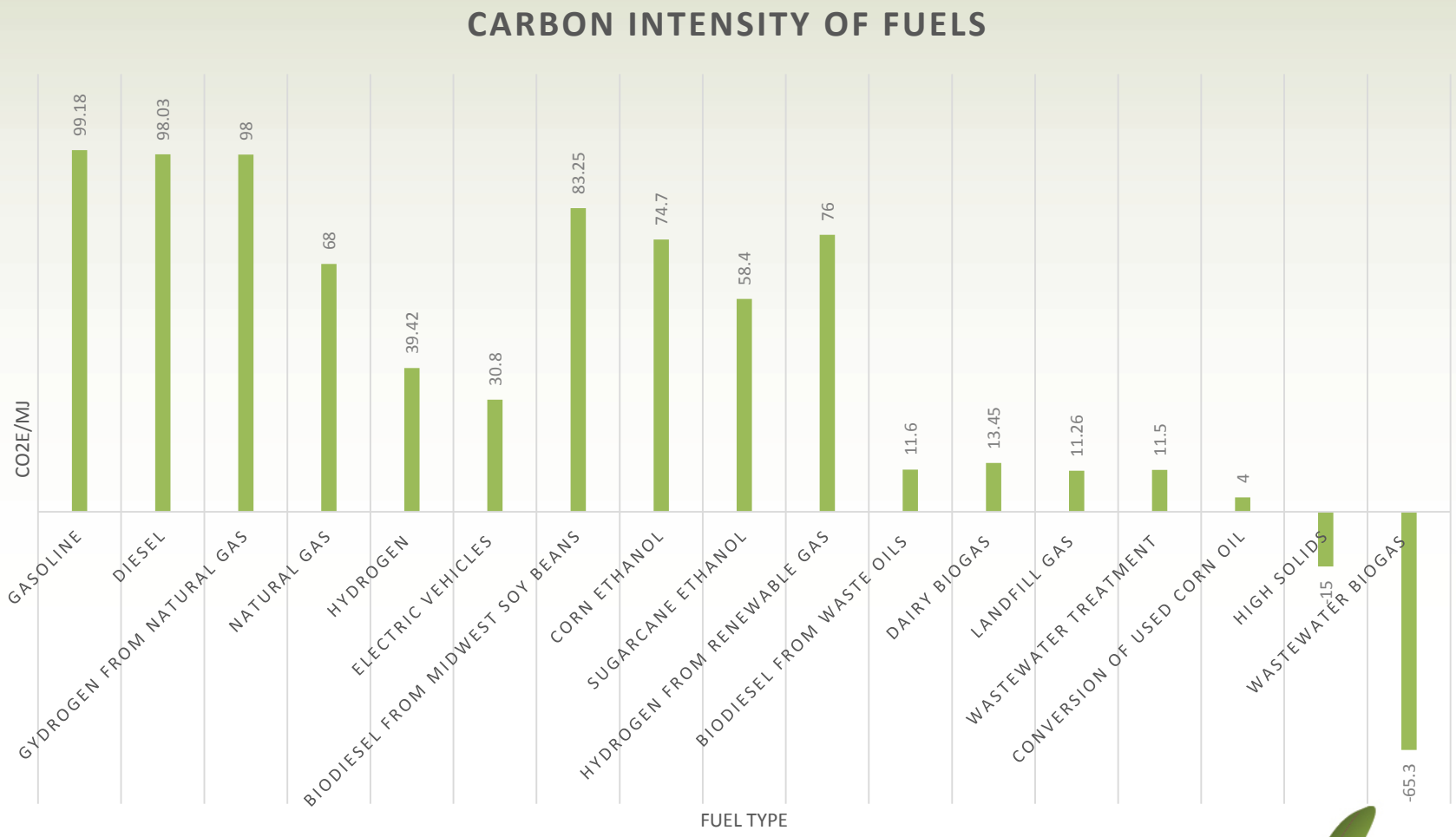
- **GREET** Greenhouse gases, Regulated Emissions, and Energy use in Transportation model was developed to fully evaluate energy and emission impacts of innovative fuel technologies.
- **Method 1, 2A and 2B**

  GREET modelling is required for new pathway application 2A or 2B
- Determines CI value and number of associated tons of LCFS credits
- Credit value: $85 USD in December, $35 USD now



The prasino Group

LCFS Carbon Intensities



The prasino Group

LCFS and RINs: What's Needed

- Fuel + LCFS + RINs = very attractive BUT
- Legal resolution/re-adoption
- New/additional CIs and movement through resource bottlenecks
- Additional verification and enforcement standards
- Finance and price assurance:
  - No ability to get forward contracts, 1-2 years only
  - Fuel offtakers are consummate traders
  - Private enterprise wants 5 year contracts, at least
  - State commit to 10 year contracts for fuels in fleets – shift the economics

AB 2390 – Green Credit Reserve

- Legislation – CA Governor designates state agency to establish and administer Reserve
- Long term stability
- Remove price and asset risk
- State acts as purchaser for pre-qualified projects that produce assets

The prasino Group

LCFS and RIN Scorecard

RIN Category	Annual Generation Capacity	$ @ 25 cents/RIN
D4	46M	11.5M
D5	432M	108.0M
D6	78M	19.5M
		Total: 139M
Annual Tonnage Generation Capacity		**$ @ $80/MT**
597,921		47.8M
	Total:	**$186.9M**

The prasino Group

The CA AB32 Carbon Landscape

- The good news:
  - Successful auctions: (May) V14 $11.50, V17 $11.34
  - Dairy biogas is eligible
  - Pricing relatively stable: CCOs $9.85-10.15 with invalidation
- What's still needed:
  - Additional clarity on project types and protocols
  - Longer term contracts or 3-5 year contracts – state take the back end five
  - Linkage with Canada?

Bioenergy Environmental Asset Strategies and Tactics (BEAST™)

Consulting and

Development

Services

understand, develop and maximize the value of environmental assets

Workshop(s)

lessons learned and best-practices

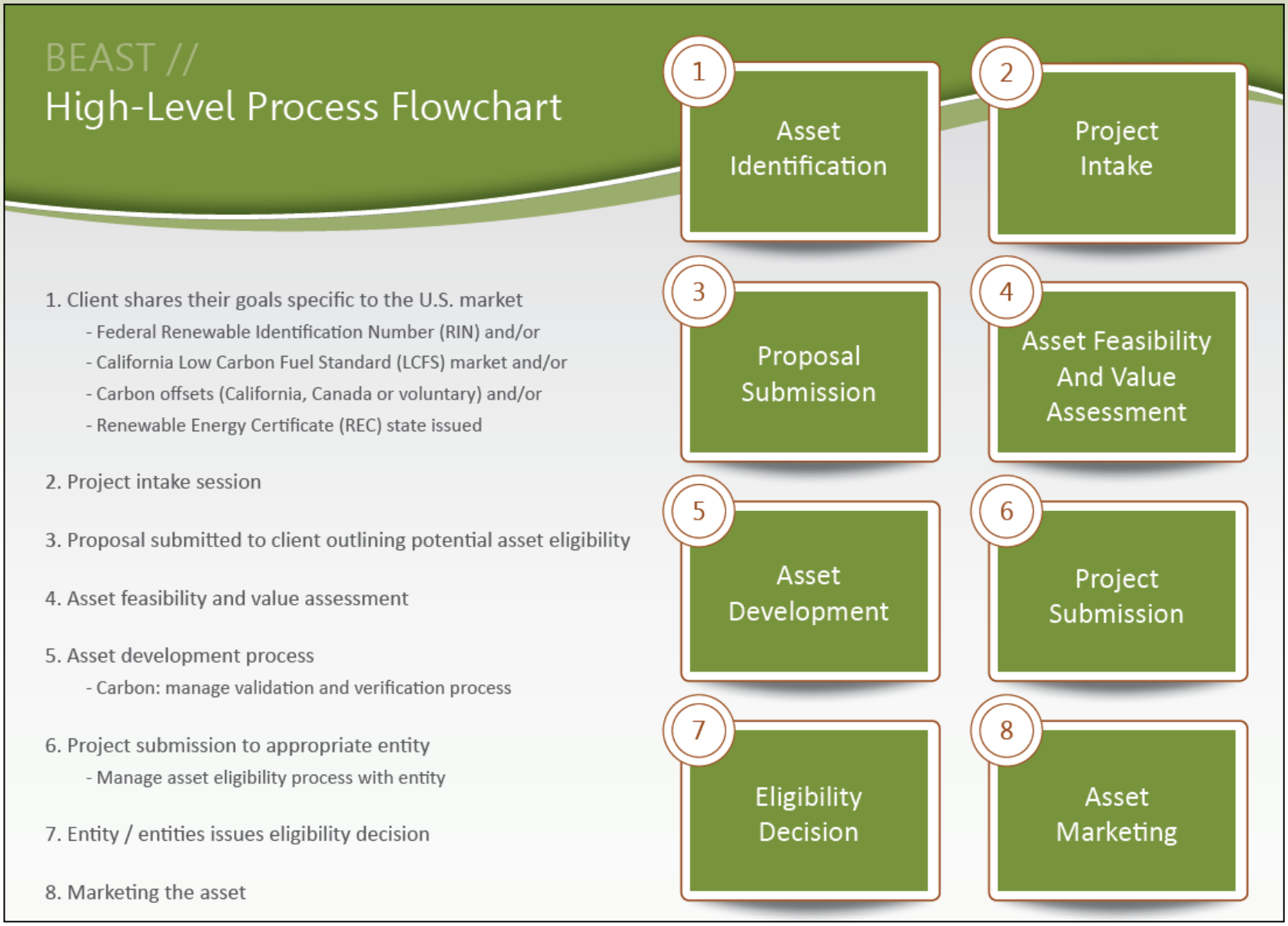
ongoing policy requirements

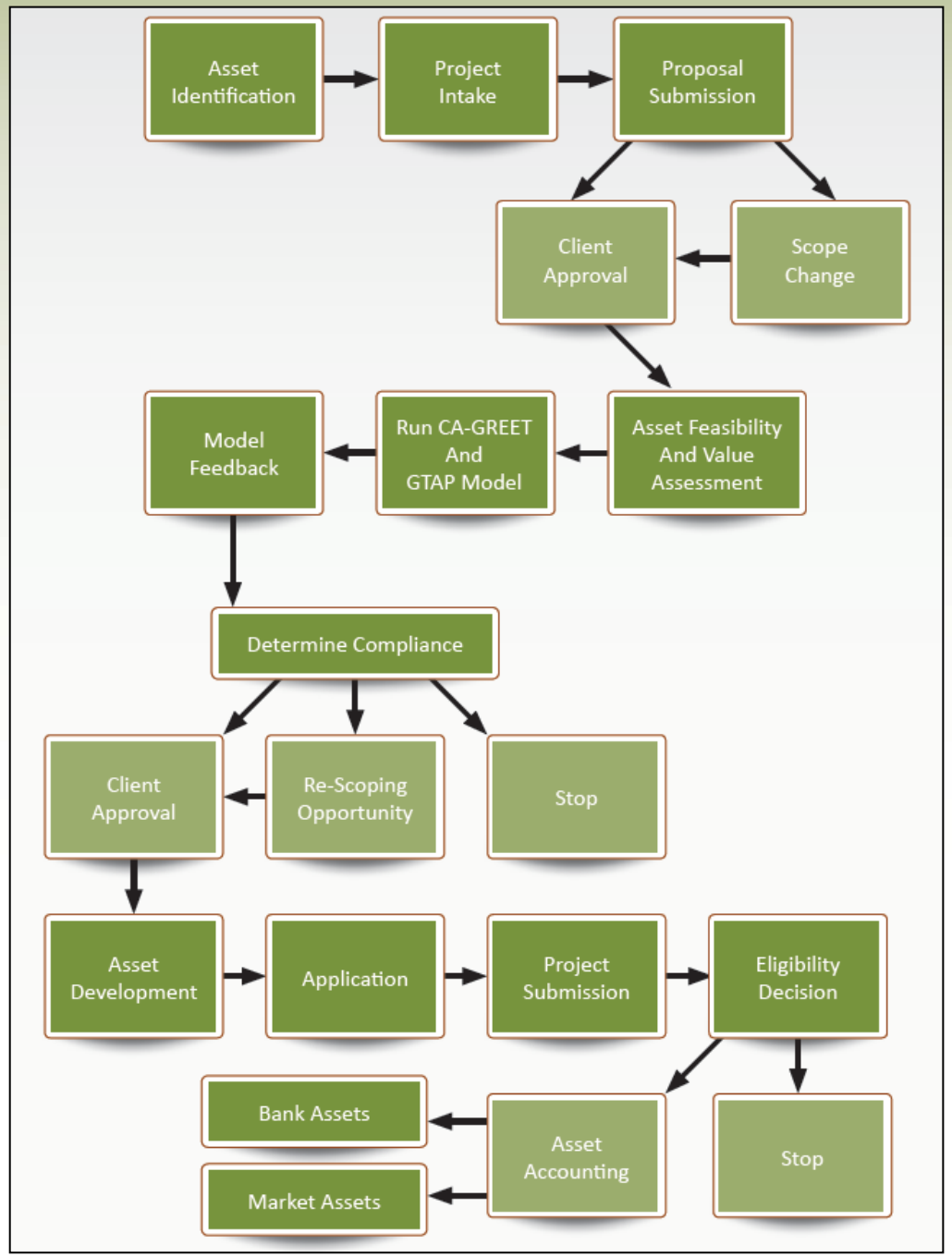
asset prices

sharing project types or technologies

The prasino Group

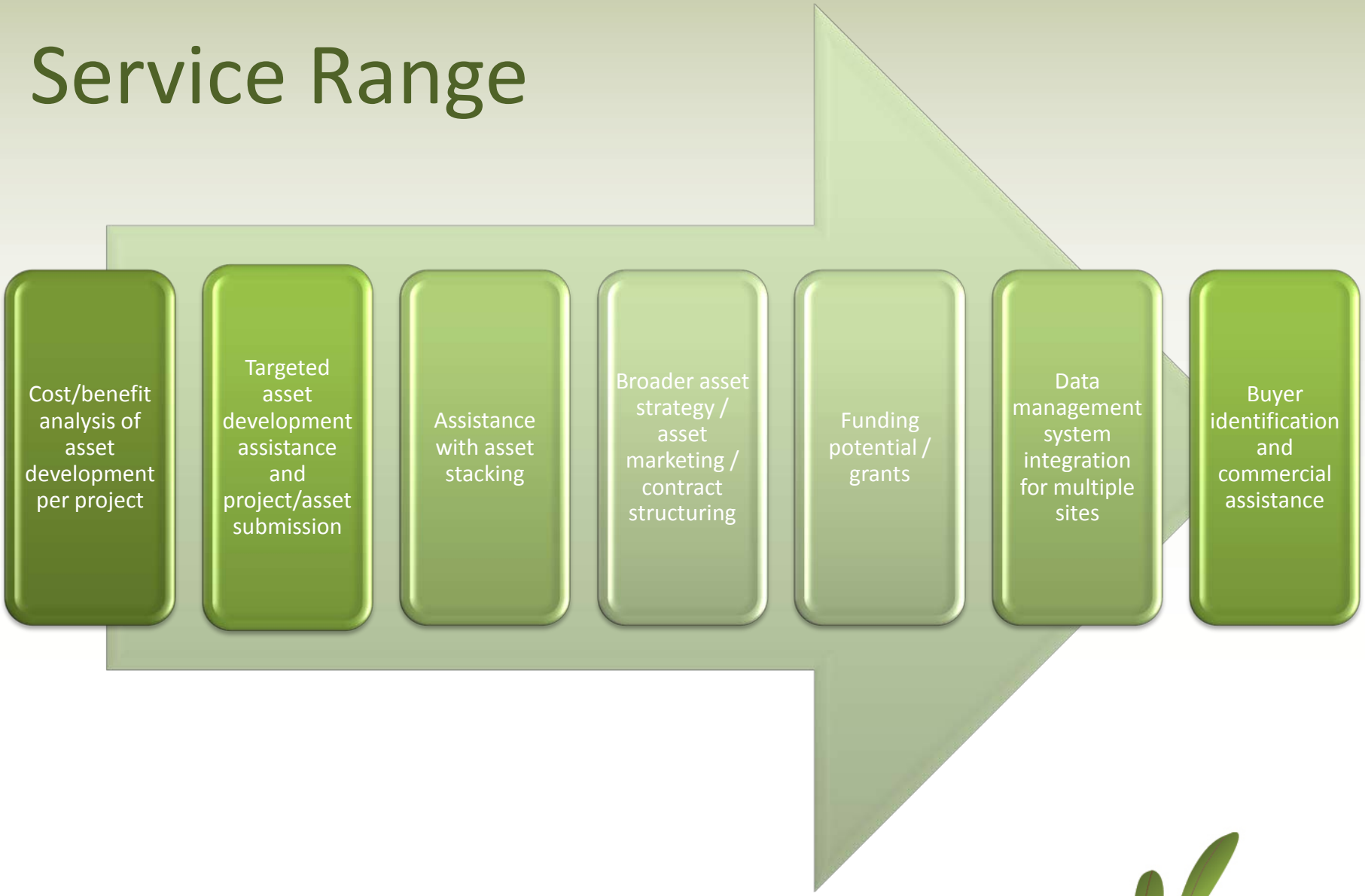
BEAST High-Level Process Flowchart





LCFS Process Flowchart

Service Range



Lessons Learned

1. From preliminary assessment to asset delivery it can take a few months to a few years to develop and realize these assets

2. The regulations are constantly evolving and new pathways are being created – navigating the regulatory documents is complicated

3. Projects outside of the US are eligible to generate RINS (fuels must be imported to US), projects outside CA are eligible to generate LCFS credits (fuels must be blended into CA)

4. LCFS credits and RINs can be stacked

5. Relationships with regulators help a lot

6. These markets are real!

The prasino Group

Questions?

csparks@prasinogroup.com
510-908-1210

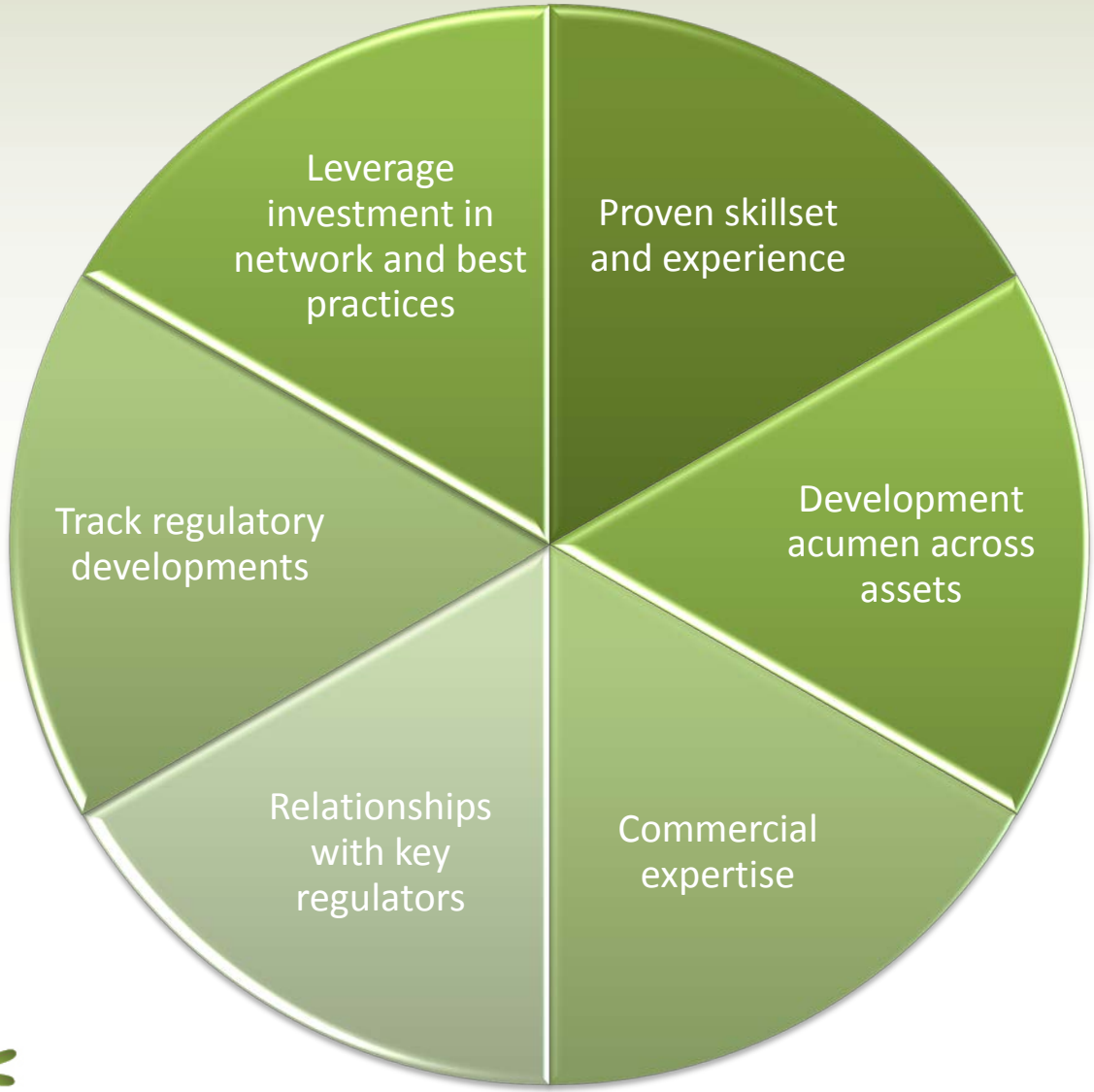
Working with LCFS

- California's Low Carbon Fuel Standard is a regulatory policy designed to reduce greenhouse gas emissions from transportation fuels used in California.
- "well to wheels" program that quantifies the emissions associated with the entire lifecycle of a fuel

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
CARBOB	CBOB001	CARBOB - based on the average crude oil supplied to California refineries and average California refinery efficiencies	99.18	0	99.18
Ethanol from Corn	ETHC001	Midwest average; 80% Dry Mill; 20% Wet Mill; Dry DGS; NG	69.40	30	99.40
	ETHC002	California average; 80% Midwest Average; 20% California; Dry Mill; Wet DGS; NG	65.66	30	95.66
	ETHC003	California; Dry Mill; Wet DGS; NG	50.70	30	80.70
	ETHC004	Midwest; Dry Mill; Dry DGS, NG	68.40	30	98.40
	ETHC005	Midwest; Wet Mill, 60% NG, 40% coal	75.10	30	105.10
	ETHC006	Midwest; Wet Mill, 100% NG	64.52	30	94.52
	ETHC007	Midwest; Wet Mill, 100% coal	90.99	30	120.99
	ETHC008	Midwest; Dry Mill; Wet, DGS; NG	60.10	30	90.10
	ETHC009	California; Dry Mill; Dry DGS, NG	58.90	30	88.90
	ETHC010	Midwest; Dry Mill; Dry DGS; 80% NG; 20% Biomass	63.60	30	93.60
	ETHC011	Midwest; Dry Mill; Wet DGS; 80% NG; 20% Biomass	56.80	30	86.80
	ETHC012	California; Dry Mill; Dry DGS; 80% NG; 20% Biomass	54.20	30	84.20

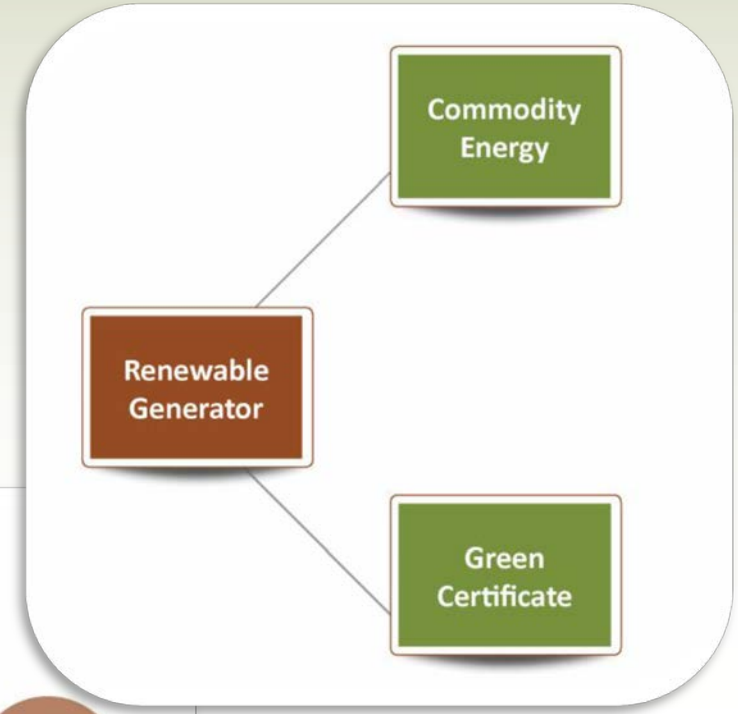
The prasino Group

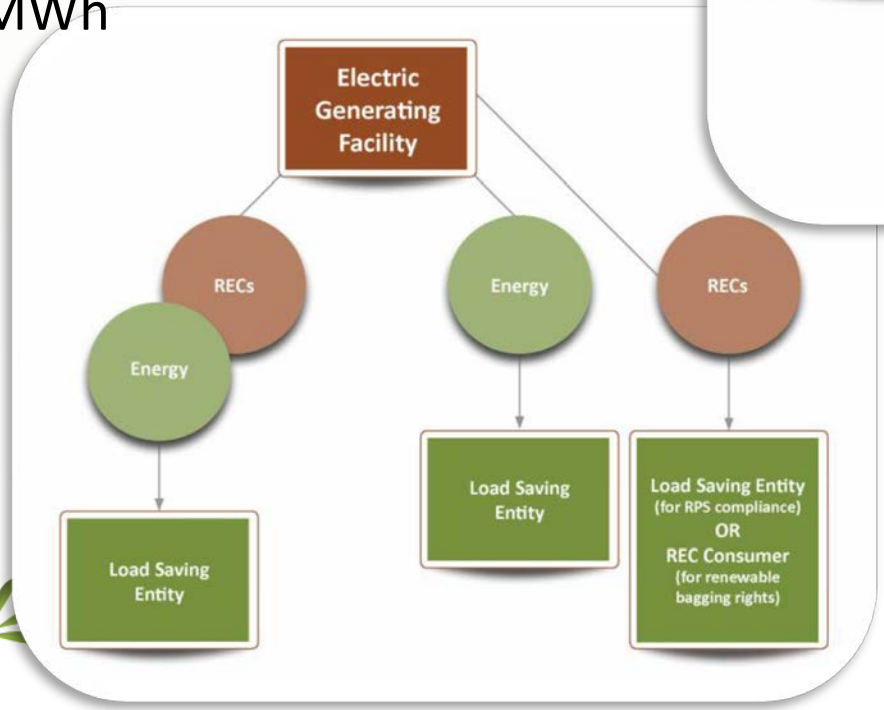
Value Add of BEAST



Renewable Energy Credits (REC)

- RECs are environmental assets generated through the production of renewable energy from wind, solar and biomass
- 1 REC= 1MWh





The prasino Group